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ATTACHABLE TRAFFIC BARRIER AMENITIES

This application claims priority from U.S. provisional application Ser. No. 60/460,262, filed April 4, 2003, which is incorporated by reference herein in its entirety.

TECHNICAL FIELD AND BACKGROUND OF THE INVENTION

The present invention relates generally to traffic barriers and, more particularly, to concrete traffic barriers that are used to control traffic typically in and around urban areas.

The proliferation and use of traffic barriers for not only their intended use, but for security around government buildings, national monuments, office buildings and the like, has led to a need to improve both the aesthetics and the function of such barriers.

The most commonly used of these barriers, is the 'New Jersey' barrier, which was created for the separation of traffic on highways or in other locations for dividing traffic either pedestrian or vehicular from other traffic. Its weight, portability, and ease of manufacture have made it a simple solution for providing immediate public safety. Therefore it has become commonplace to see these barriers along highways, near construction sites, outside airports, etc. As the use of these barriers expands outside their original intent, it becomes apparent that these products were not created with the same aesthetic or architectural considerations that have gone into those buildings or public spaces that they are meant to protect.

It is therefore desirable to create elements that enhance the function of the concrete barrier and do so in a more aesthetically pleasing manner.

SUMMARY OF THE INVENTION

The present invention looks to expand traffic barriers beyond their commonly understood application and to utilize them as a foundation for providing streetscape improvements and, thereby, enhance the function or aesthetic of the concrete barrier and the space they occupy. The overall concept for the invention is to create a series of relatively light, modular, and interchangeable components for attaching to traffic barriers in an effort to increase and expand the use and flexibility of these concrete products that are otherwise rigid in their form and adaptability. The culmination of the invention, incorporated as planter, handrail, signage, etc., allows the creation of an instant park or public space through the use

of concrete barriers as the base. It is the ability of the invention, to take concrete barriers and to use them as a structural foundation for a more aesthetically pleasing environment.

In one embodiment of the invention, objects are mounted to concrete barriers to expand the function of the concrete barriers. Examples of objects to be mounted to the barriers include planters, signage, and handrails, which are mounted to the barrier by employing an attachment. The attachment includes downwardly depending flanges that straddle and rest securely atop the barrier. These objects in their various embodiments provide an aesthetic and/or functional benefit to the barrier and its environment. The predicted applications for the invention are within the fields of facility management, landscape architecture, event planning, construction, traffic management, and public/pedestrian safety.

Accordingly, it is an aspect of the invention to provide attachments to traffic barriers and, more particularly, attachments that enhance the performance or use of the barriers. Once created, such an invention has applications to areas in which both public safety and streetscape aesthetics can be improved upon, such as construction sites, parking lots and airports. To create both functional and aesthetic enhancements to the use of traffic barriers, the present invention takes advantage of the rather standardized dimensions of concrete highway barriers. The downwardly depending flanges allow the invention to straddle the barrier, creating an easy-to-apply attachment that allows various objects to be attached to enhance both the form and the function of the barriers.

The attachments are novel in their ability to straddle barriers, and enhance the utility of the barrier, rather than to be merely fastened onto the barrier.

In order to accommodate the various uses and environments in which the barriers are used, it is necessary for the present invention to be easily attachable to a barrier. Therefore it is another aspect of the invention to be a retro-fit attachment to barriers.

Since the most commonly used barriers are the New Jersey-types, it is another aspect of the invention to utilize New Jersey-type barriers of standard configuration as the foundation upon which attachments that provide aesthetic or functional benefits will be installed.

Understanding that the present invention and its employ of an attachment that straddles the barrier create opportunities with which to enhance the performance of the barrier, it is another aspect of the invention to provide aesthetic attachments to the barrier. The attachments could incorporate or take the form of ornaments, planters, or handrails, with

their placement upon the barriers providing an immediate aesthetic improvement to the barrier and its surroundings.

Similarly, it is another aspect of the invention to provide functional benefits, such as attachments that serve as signage, bike racks, benches, utility encasements (electricity and plumbing), tool storage, lighting, fencing, and walls, whose placement upon the barriers provide an immediate additional function to the barrier and its original intent.

The present invention, in its various embodiments, suggests the ability to be interlocked and interchanged with other embodiments of the same invention. Therefore, it is another aspect of the invention to be of interlocking components. In this regard, attachments are secured to each other, for example through couplers or fasteners - both horizontally (as they fit next to each other along the top of the barrier) and vertically (as they snap into the base attachment).

In its original embodiment, the present invention has two downwardly depending flanges that allow the attachment to straddle the barrier and provide the main means of affixing the attachment onto the barrier. Therefore, it is an aspect of the invention to be temporary attachments that are placed on the barrier itself and held into place through friction and gravity and as a result provide temporary aesthetic or functional benefits to the particular barrier.

Since the straddling method only provides the primary means for being attached to the barrier, in some applications there may be a need to have a secondary means of securing the attachment to the barrier. Therefore, it is another aspect of the invention to have the ability to be pinned, screwed or bolted into place on the barrier itself, and as a result, the attachment is able to provide a more permanent aesthetic or functional benefit to the particular barrier.

The present invention is to be used in connection with a number of other attachments. Therefore, it is another aspect of this invention to be modular and configurable, so as to allow for a number of permutations in the combination and linkage of the barriers and attachments, one with another.

These and other objects, advantages, purposes and features of the invention will become more apparent from the study of the following description taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of an attachment of the present invention illustrating two downwardly depending flanges that will allow the attachment to straddle and mount securely to a traffic barrier;

FIG. 1A is a cross-section view of the present invention taken along line IA-IA of FIG. 1;

FIG. 2 is an exploded perspective of the attachment of FIG. 1 and a traffic barrier;

FIG. 2A is an elevation of the attachment mounted on the barrier;

FIG. 3 is a perspective of the attachment of FIG. 1 mounted on a traffic barrier with the attachment incorporating a planter;

FIG. 3A is an elevation of the attachment and planter mounted on a traffic barrier of FIG. 3;

FIG. 3B is a section view of the attachment taken along line IIIB-IIIB of FIG. 3;

FIG. 4 is a perspective of the attachment of FIG. 1 mounted to a barrier with the attachment incorporating an ornamental handrail;

FIG. 4A is an elevation of the attachment and handrail atop the barrier;

FIG. 4B is a section view of the handrail taken along line IVB-IVB;

FIG. 5 is a partial exploded perspective view of the attachment and barrier of FIG. 2 with the attachment incorporating interchangeable ornamental elements;

FIG. 5A is a partial fragmentary elevation of the attachment and barrier of FIG. 5;

FIG. 6 is a perspective of another embodiment of an attachment of the present invention wherein the attachment comprises a bench;

FIG. 6A is an elevation of the attachment and the barrier of FIG. 6;

FIG. 7 is a perspective of the attachment of FIG. 1 of the present invention with the attachment incorporating lights;

FIG. 7A is an elevation of the attachment and barrier of FIG. 7;

FIG. 8 is a perspective of the present invention with the attachment incorporating interchangeable signage and their placement on the barrier of FIG 2;

FIG. 8A is cross-section of the invention housing the signage atop the barrier taken along line IIIVA-IIIVA of FIG. 8;

FIG. 9 is a perspective view of the present invention with an attachment incorporating an encasement or organizer for utilities (plumbing/electrical) and their placement on the barrier of FIG 2;

FIG. 9A is an elevation of the utility encasement and its position on the barrier;

FIG. 10 is a perspective view of the present invention with the attachment of FIG. 1 incorporating an armature for walls, fences or signage and their placement on the barrier of FIG 2;

FIG. 10A is an elevation of the attachment and armature on the barrier;

FIG. 11 is an exploded section view taken along line XI-XI of FIG. 3 of mounting openings of the present invention as it would be joined with a planter attachment upon the barrier;

FIG. 11A is a cross-section view taken along line XIA-XIA of FIG. 3 of the attachments and barrier assembled;

FIG. 12 is a perspective view of four attachments of the present invention illustrating the interchangeable capabilities of the present invention and its placement on the barrier of FIG 2;

FIG. 13 is a perspective view of the present invention with the attachment incorporating a securing method, i.e., screwing, which would affix the attachment to the barrier in FIG 2;

FIG. 13B is an elevation view of the attachment and barrier of FIG. 13 illustrating screws as they would enter the barrier through the attachment;

FIG. 14 is a perspective view of the present invention of an attachment incorporating a 'snap-to-fit' component for placement on a redesigned version of a traffic barrier with mounting surfaces to accommodate the attachments from above;

FIG. 14A is section view of the mountable barrier with the 'snap-to-fit' attachment;

FIG. 15 is a perspective view of the present invention with an attachment incorporating 'slide-to-fit' components for placement on a version of a traffic barrier that utilizes grooves to accommodate the attachments from the side;

FIG 15A is an elevation of the grooved barrier and the 'slide-to-fit' attachments;

FIG. 16 is a perspective view of the invention with the attachment incorporating a planter in combination with two barriers in FIG 2;

FIG. 16A is an elevation of the planter straddling two barriers;

FIG. 17 is a perspective view of the present invention with the attachment incorporating a planter designed at an angle to fit atop two barriers arranged at an angle with respect to each other;

FIG. 17A is an elevation view of the planter atop the two angled barriers;

FIG. 18 is a perspective view of the present invention with an attachment incorporating a planter/signage two-part assembly as it would fit over the barrier in FIG. 2; and

FIG. 18A is an elevation of the two-part assembly of FIG. 18 atop a barrier.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, the numeral 10 generally designates an attachment 10 of the present invention, which is configured and arranged for mounting and optionally securing to a concrete traffic barrier 12 (FIG. 2). As will be more fully described below, attachment 10 forms a primary attachment that facilitates the enhancement of the utility and/ or aesthetic appearance of the barrier by providing the barrier with one or more mounting surfaces that permit various objects, such as planters, signs, handrails, etc., which form secondary attachments, to be mounted to the barrier. It is an aspect of the invention to provide an attachment that includes or incorporates, other objects or elements, such as signage, planters, etc. Therefore, there are characteristics of the present invention illustrated in FIG. 1 to show this utility.

In the illustrated embodiment, attachment 10 includes a pair of downwardly depending flanges or portions 10a and 10b that straddle barrier 12. Flanges 10a and 10b are interconnected at their upper ends by a web 10c, which also acts as a horizontal support surface, including a planar support surface, to stabilize the attachment atop the barrier. The mounting surfaces noted above may be provided at web 10c or by flanges 10a and 10b. In the present embodiment, web 10c includes at least one mounting opening 10d and preferably a plurality of mounting openings 10d, 10e, 10f for receiving couplers, for example, couplers 14a of planter 14, as will be more fully described below. As would be understood, the openings 10d, 10e, 10f on the top portion of attachment 10 permit various objects or products to be affixed to attachment 10 from above. Flanges 10a and 10b also form an outwardly facing framework 10g for holding and displaying vertical planar elements in place within

each of the respective flanges. Vertical planar elements, such as signs, decorative panels, or the like, may be added and inserted from above the attachment and placed within two 'U' shaped side channels 10h, 10r of frame 10g that make up the outside walls of the frame of the respective flange 10a, 10b. As a result of the channels, any elements added to the frame are held in place laterally and rest securely within a channel 10i located at the bottom of the frame 10g per the illustration in FIG. 1A. The added elements are viewed through the front opening 10j of the frame 10g, and held generally upright at the front side of the flange 10b.

FIG. 1A is a cross section view of the attachment and illustrates mounting opening 10e across the upper horizontal planar surface 10l, as well as the bottom channels 10i within which any added vertical planar elements will rest.

To secure attachment 10 to barrier 12, attachment 10 includes one or more mounting openings. For example, flanges 10a and 10b may have mounting openings provided at their bottom portions 10m, 10t, 10s, which illustrates the present invention's capability to be more securely mounted and fixed to the traffic barrier through means of bolting, pinning or screwing. Also mounting openings 10d, 10e, and 10f may be used to secure attachment 10 to barrier 12. In this manner, web 10c can act as a mounting surface for not only objects but for connecting the barrier and the attachment together through mounting openings, such as 10d. These characteristics will be discussed and illustrated in more detail throughout the following drawings and descriptions.

Attachment 10 is structured with a raised chamber 10n that serves both as a web 10c to house mounting openings and as a mounting structure itself, as noted above. The inverted chamber 10n that is created by the mounting structure acts to hold into place coupling mechanisms from objects mounted to it from above and provides one half of a coupling mechanism. As a result, objects structured with a concave or recessed bottom will nest on top of the raised chamber of attachment 10 (as best understood from FIG. 11A, for example). The corresponding base perimeter wall of the object added from above will fit around and cover the top outer perimeter edge/shelf/ledge 10o of attachment 10 so that the object and attachment form a modular assembly.

The present invention, embodied as various objects and attachments, will possibly be made of plastic, though other materials such as rubber, metal, concrete may be used for the structural integrity of the objects and attachments or as the materials for the objects and attachments themselves.

FIG. 2 illustrates how the attachment 10 would fit on standard sizes of traffic barriers 12 by straddling the barrier using its two downwardly depending flanges 10a, 10b and the horizontal mounting surface 10c of FIG. 1. The barrier is usually a concrete body 12a with a base 12b and an upstanding substantially vertical wall portion 12c. The base 12b can vary from 24" to 28" across the bottom 12d and has a generally trapezoidal shaped cross-section. The upstanding substantially vertical upper wall portion 12b, having generally parallel sides, rises and slightly narrows as it reaches its top. In a standard barrier, for example, top side 12e is at a height of approximately 32" from the base and varies from 6" to 10" in width across a substantially flat top surface of the barrier. However, it can be appreciated that the shape and dimensions of the barrier may be varied and are only provided as exemplary dimensions and shapes of a conventional barrier. The attachments would use their downwardly depending flanges 10a, 10b for placement on such a barrier. For example, attachment 10 could be placed on a portion of a New Jersey barrier, as seen in FIG. 2, with its standard dimensions. Some States' Department of Transportation specify a barrier with dimensions of 10" across the top, 2' 4" at the base and a height of 2' 8". The present primary attachment incorporating two downwardly depending flanges are therefore designed to correspond and complement these dimensions so as to be placed securely on top of a barrier either with or without the assistance of mechanical fastening.

The downwardly depending flanges, as they are to be used for mounting the barrier, are best understood in FIG. 2A, which illustrates how the attachment will rest securely atop the barrier 12.

It is intended for attachment 10 to act as a singular attachment placed individually on top of the barrier as illustrated in FIG. 2. It is also intended that attachment 10 act as a primary attachment or armature that employs both top and side attachment mounting surfaces in order to work in combination with a number of objects or secondary attachments with corresponding mounting capabilities. FIG. 3 illustrates attachment 10 incorporated as an armature with mounting surfaces onto which other objects or secondary attachments can fit securely, such as the planter attachment 14 of FIG. 3. FIG. 3A shows the primary attachment 10 with the planter attachment 14, fitting securely upon the barrier 12. The two downwardly depending flanges straddle the barrier and provide lateral support for the primary attachment and hence the secondary attachment—the planter attachment. This barrier mounting capability allows the primary attachment to act as an armature or base upon which other secondary attachments can be affixed through coordinated mounting openings.

Such openings could be found on the bottom of the planter attachment 14a of FIG. 3B and the web 10c of primary attachment 10 of FIG. 1.

Planter attachment 14 forms a planter box and includes a planting chamber 14b with two sidewalls 14c, 14d that run upward and parallel to each other and whose base 14j is adapted for attachment to primary attachment 10. The front and back walls 14i, 14f of the planting chamber can be seen in FIG. 3 as arcs being curved outward and away from each other. This form creates a planter box with a large rectangular top opening and a smaller rectangular base. Base 14j includes a central generally planar upper support surface for supporting containers and a grooved lower surface with central projecting members or ribs 14a between recessed portions 14g, which form mounting components for planter attachment 14. As best seen in FIG. 3B and 11A, when members 14a are aligned and inserted into mounting openings 10d, 10e, and 10f of web 10c, base 14j will nest with raised chamber 10a of attachment 10 and the outer peripheral portion 14h of the lower surface of attachment 14 will seat on shelf 10o of attachment 10. As a result, base 14j and attachment 10 are configured to create an interlocking interface, as illustrated in FIG. 11A.

The present invention, embodied as a primary attachment 10 with mounting surfaces, allows for a myriad of amenities with complementary mounting capabilities to be attached to the traffic barrier 12. In addition to the primary attachment incorporating a planter attachment, the primary attachment could also incorporate other aesthetic attachments as illustrated in FIG. 4, such as a railing attachment 16 that is attached to attachment 10. The railing attachment has a recessed bottom 16a (FIG. 4B), and a mounting component 16b on its underside, both of which create an interlocking interface between the railing's base 16c and web 10c of primary attachment 10 as seen in FIG. 4. This coupling mechanism, similar to the mechanism seen in FIG. 11, allows the railing attachment 16 to be disposed on top of the primary armature 10. Rail attachment 16 includes a wall 16d that forms a handrail, which is preferably integrally formed with base 16c. For example, wall 16d may have a height of approximately 4" to 8" and which preferably extends perpendicularly from base 16c and runs through the center down the length of the attachment. An ornamental pattern 16e, seen from both the front and back of the attachment, is either molded into or die-cut away from, or applied to the railing's side surface. The top side of wall comprises a planar horizontal surface 16f. FIG. 4A demonstrates how the attachment 10 and the railing attachment will rest upon the barrier 12 with the handrail acting as a decorative cap to the barrier and the primary

attachment. Seen in section view, base 16g of rail attachment 16 has a slightly curved upward slope, from which the parallel vertical sidewalls 16h of wall 16d are formed.

Other aesthetic benefits to the barrier are illustrated in FIG. 5, which shows decorative elements in the form of sleeves, screens, or panels 18 that have been created with a printed, molded or die-cut pattern 18a on them. These decorative elements 18, thin, vertical and planar in form, are rectangular in shape and are sized to fit within the grooves 10h located on the two downwardly depending flanges 10a, 10b of primary attachment 10. A section view of the primary attachment and the two downwardly depending flanges that will hold the signage can be seen in FIG. 5A. Grooves that form an 'L' shaped channel, 10q, 10p, 10h, 10r, are located in and run along the inside bottom and inside sides of the flanges create a framework with an open front 18b but closed back 18c. The open front 18b allows for the display of decorative elements. Introduced into the frames from an opening on the front and back topsides of the primary attachment, the decorative element slips into place within the grooved receptacle formed by channels 10q, 10p, 10h, 10r, and 10j as seen in FIG. 5. FIG. 5A illustrates how these elements nest securely within the receptacle and how the elements will fit within the profile of the attachment 10 atop the barrier 12.

The present invention and its ability to straddle and secure itself upon a barrier, also creates other opportunities for the embodiment of the invention into objects that provide both aesthetic and functional benefits. FIG. 6 and FIG. 6A show the design of a bench attachment 20 to fit upon the barrier 12. Bench attachment 20 is formed to slip over the vertical walls of the barrier in FIG. 2, similar to attachment 10. The structure of the bench attachment is to be supported and counterbalanced by resting its foot 20f along the bottom of the barrier. There are five main structural elements of the bench attachment. The first element comprises a downwardly depending back portion 20a, which runs vertically along the upward wall of barrier 12 and is located on the backside of the bench attachment. The second portion 20b forms the top side of the bench attachment that runs horizontally along the top side of the barrier and connects back portion 20a to a front portion 20c. Portion 20c runs parallel with the upward wall of the barrier and acts both as the backrest portion of the bench attachment and as a way for securing the bench attachment to the barrier. First portion 20a in combination with second portion 20b and third portion 20c form an inverted U-shaped structure that provides the primary method of securing the bench attachment in place to barrier 12, similar to attachment 20. Bench attachment 20 further includes a fourth portion 20d that runs generally parallel to the top side of the bench attachment and to the

ground on which the barrier rests and makes up the seating plane of the bench attachment. The fifth portion 20e of the bench attachment is angled back from the portion 20d at an acute angle and makes contact with the base of the bench, with its distal edge forming a foot to provide a foundation for the bench attachment.

FIG. 7 illustrates the way in which primary attachment 10 can incorporate a lighting attachment 22, either as decorative elements for public space, or as safety or warning lights for vehicular traffic zones. The lights/light bulbs themselves will be housed within decorative encasements 22a, 22b, with the goal of providing aesthetic or ornamental benefits to the barrier. Light attachment 22 includes a base 22c and with encasements 22a, 22b mounted to base 22c. For illustrative purposes, the light encasements are illustrated as two boxes 22a, 22b that have been molded into a top portion of base 22c. Once again, primary attachment 10 contains mounting surfaces that allow for the placement of light attachment 22 to the barrier, as described in FIG. 11. As would be understood from underside attachment 22 is fitted with coupling devices capable of attaching to primary attachment 10. In addition, base 22c is configured to enclose the top section of the front and back frames 10g of attachment 10. The encasements 22a, 22b emerge as two separate elements from a slightly crowned plane 22d formed in base 22c. FIG. 7A shows in elevation light attachment 22 and primary attachment 10 atop the barrier 12.

The decorative patterned sleeves/screens 18 that were illustrated in FIG. 5 can also be embodied as signage 24 as shown in FIG. 8. The present invention incorporated as signage can be inserted into the primary attachment 10. A section view of the primary attachment 10 atop the barrier 12 that will hold the signage 24 can be seen in FIG. 8A. The intention of this embodiment of the present invention is for use within parking lots, construction zones, and public gathering spaces. These signs can be placed within the grooves 10h, 10p, 10q, 10r and channel 10i located on the two downwardly depending flanges 10a, 10b of the primary attachment 10. Grooves 10h, 10p, 10q, 10r that are located in and run along the inside sides of the flanges create a framework with a closed back and an open front that allows for the display of the signs. Introduced into the frame from an opening on the front and back topsides of the primary attachment, the signage slips into place within frame 10g and is also held into place by the bottom channel 10i, allowing the sign to nest securely within the frame. FIG. 8A illustrates how the signs 24 will fit within the profile of the attachment 10 atop the barrier 12.

FIG. 9 depicts the present invention incorporated as a utility attachment 26, attached to the barrier of FIG. 2. The utility attachment is designed to organize and/or store plumbing or electrical wires, during events, such as public gatherings or street fairs, or wherever such utility is needed. For illustrative purposes, attachment 26 is shown as having a back portion 26a and top portion 26b, which hooks over and cover the top portion of the barrier 12 and having a front portion 26c that extends down the other side of barrier 12 and includes a base 26d that is angled with respect to portion 26c so as to generally follow the shape of the base 12b of barrier 12. Base 26d includes three upwardly flanges 26e that form a passageway or channel that is suitable for the placement of electrical or plumbing lines to rest and extend along inwardly of flanges 26f in the channel away from public interference. Flanges 26e, 26f, 26g are made of a rigid material that prevents substantial lateral movement of the utilities and keeps them secure and close to the weight and sturdiness of the barriers. FIG. 9A shows the utility attachment 26 as it would be supported by the barrier 12 of FIG. 2.

Similarly, FIG. 10 illustrates attachment 10 incorporating an upwardly directed framework attachment 28 into which elements 28a, such as fencing, plexi-glass, or signage can be accommodated. Similar to other secondary attachments embodied by the present invention, framework attachment 28 includes a base 28b with a recessed bottom and one or more mounting components on its underside, both of which create an interlocking interface with primary attachment 10 similar to the previous embodiments. The coupling mechanism located on base 28b allows framework attachment 28 and its additions to be disposed on top of the primary attachment 10. The framework attachment 28 includes an upwardly extending frame 28d that projects upwardly from base 28c, with an inner groove or 'U' channel 28e that runs entirely along the inside edge of frame 28d of the frame. Frame 28d includes transverse members 28f and vertical members 28g, 28h that form the U-shaped frame 28d. In the illustrated embodiment, U-shaped frame 28 is formed from two L-shaped frame members, each with a separate base. However, it should be appreciated that the bases may be formed a single base and horizontal members 28f may be formed by a single continuing horizontal member. When formed from two L-shaped frame members, each frame member may be supported by a separate primary attachment. Therefore, in the illustrated embodiment, framework attachment 10 is mounted to barrier 12 using two primary attachments 10. Vertical elements 28A, such as signage panels or the like, are then slid into place into groove 28e and rest securely within the two L-shaped frame members. FIG. 10A shows the height of the framework attachment 28 as it would sit atop a barrier 12.

FIG. 11 is a section view that illustrates one way in which a secondary attachment, such as a planter attachment 14, and the primary attachment 10 could fit together on the barrier 12. The planter attachment is created with a mounting surface on its underside. The mounting surface consists of one or more coupling members 14a, as well as a recessed or groove bottom 14g, that forms an inverted chamber, both of which allow for the planter to be attached to the attachment 10. It is into this inverted chamber that a slightly smaller raised chamber 10n on top of attachment 10 will fit. This connection provides lateral support for the planter attachment as it nests atop the primary attachment. Web 10c on the primary attachment acts to connect the downwardly depending flanges 10a, 10b. As noted, web 10c can also provide a mounting surface for securement of any type of secondary attachments, such as the planter attachment 14, to the barrier 12. The web 10c located on the top of the primary attachment allows for simple connections from complementary coupling members 14a located on the bottom of the secondary attachments. FIG. 11A is a section view of the assembly of these parts 14, 10 on the barrier 12 and shows that the planter attachment has a recessed bottom 14h, and a mounting coupler or coupling member 14a on its underside, both of which create an interlocking interface with the primary attachment 10.

The attachments, in all of their embodiments, should be understood as interlocking, interchangeable and configurable. It is this characteristic of the present invention that will allow it to provide traditional barriers with flexibility and adaptability of their use. Though they are individual objects, the present invention in its various incorporations, are to be used in combination with one or more of the other embodiments of the invention. It is intended that the embodiments be placed atop a freestanding barrier in a series or in a system, as illustrated in FIG. 12. To do so, the lengths of the present invention are determined by the optimum number that fit on an average 10' barrier – most likely the invention will be either 2.0', 2.5' or 5.0' – fitting either two, four or five per barrier. FIG. 12 shows one of a number of configurations that could occur with using the present invention 10 incorporated into just two other embodiments of the invention, the planter attachment 14 and the ornamental rail attachment 16.

The primary means of securing any attachment to the barrier is the straddling method that has been illustrated in FIG. 2 and throughout the description of the drawings. If so desired, the attachment can be secured to the barrier from above, as has been described in FIG. 11 in the illustration of the top surface on the primary attachment connecting the downwardly depending flanges. The mounting surface can also act as a web to secure the

attachment to the barrier. However, as noted a secondary means of securing the primary attachment to the barrier may be used, such as by fasteners, which allows for the user to determine the relative permanence of that attachment, either temporarily or more permanently affixed to the barrier. FIG. 13 illustrates a way in which the present invention can be simply bolted, pinned or screwed 30a, 30b, 30c into place on the barrier 12. In this embodiment, the primary attachment includes on or more mounting openings 10m, 10s, 10t provided at their bottom portions, which illustrates the present invention's capability to be more securely mounted and fixed to the traffic barrier through means such as: bolting, pinning or screwing. Mounting openings are strategically placed at both the top side of the attachment 10, as well as at the bottom portion, so as to provide a sufficient amount of structural integrity for affixing the primary attachment to the barrier through the use of fasteners that would be applied through the mounting openings and into the barrier. FIG. 13A illustrates that this secondary means of securing the present invention to the barrier does not necessitate any reforming or redesigning of the barrier as the foundation structure.

Other forms of secondary means for attaching the present invention to a barrier do call for the redesign of the barrier. Though the present invention, incorporated as attachments, is still mounted to the barrier from above, the attachments are designed with coupling mechanisms that can be joined to a barrier, which in this iteration, is now designed with corresponding coupling surfaces and mechanisms. An example of this design can be seen in FIG. 14, which illustrates the present invention as a 'snap-to-fit' component 36 with a barrier 34 that designed to cooperate with one or more attachments 36. Barrier 34 includes a base 34m with a series of upwardly extending inverted Y-shaped members 34a, 34b, 34c, 34d, 34e that are aligned and arranged in a spaced relationship to form a "saw-toothed" pattern of open and filled spaces. Each of these members includes an upward rectangular member 34f and a bottom portion 34g that is a trapezoidal shape that forms a base 34m. Members 34f form a wall portion. In between each member 34a, 34b, 34c, 34d, and 34e, there is a smaller base 34h, which is also a trapezoidal structure, but smaller in proportion than bottom portion 34g. These interstices act to accommodate the downwardly depending flanges 36a, 36b, 36c, 36d of attachment 36 and their coupling mechanisms 36e, 36f, 36g, 36h, that lock into place on the underside of the front and back edges 34j, 34i, 34k, 34l of the base 34m. This structure allows the four downwardly depending flanges to slip and lock into place in between the open spaces and also allows the planter box 37, which is formed in the upper end of attachment 36 to rest securely along the top of the barrier. Furthermore, flanges

36a, 36b, 36c, 36d may be configure so as to lie in the same plane as members 34f so as to appear as a unitary part. Both the barrier and its attachments are designed in order to accommodate the addition and exchange of the attachments. In this illustration the present invention is incorporated as a planter attachment. The attachment has a trapezoidal chamber 36i with a rectangular top opening that forms the planter box. FIG. 14 shows chamber 36i with sidewalls that are parallel 36j, 36k and the front and back walls 36l, 36m that slope inward towards each other and into horizontal wall 36n.

As noted, on the feet of the four downwardly depending flanges 36a, 36b, 36c, 36d are coupling mechanisms 36e, 36f, 36g, 36h that have the ability to attach to the barrier along the base of the barrier along edges 34j, 34i, 34k, 34l. Mechanisms 36e, 36f, 36g, 36h comprise inwardly projecting fingers or ribs that provide a 'snap-to-fit' coupling with the edges of base 34m. This snap-fit coupling utilizes the flexibility of the attachments to connect the attachment from above and onto the barrier. FIG. 14A illustrates the 'snap-to-fit' component in profile, as a part that can be snapped onto a barrier, which has been designed to accept and hold the attachments. In section, as seen in FIG. 14A, the planter box 37 has a profile of an inverted trapezoid with the upper portions of flanges 36a, 36b running parallel and downward, with the lower portions angled outwardly at an obtuse angle. The lower edge of the lower portions are then angled back towards each other for a short distance at the foot of the flanges to form hooks at the ends of flanges 36a, 36b. This 'snap-to-fit' method of attaching the components to the barrier allows for a quick assembly process and one that could accommodate various components and their configurations.

The present invention, incorporated as attachments to the barrier, has heretofore been described as relying on its downwardly depending flanges to be secured to the barrier. In an effort to provide more stability or permanence to the attachment on the barrier, the invention has employed secondary methods of affixing the attachment to the barrier, such as bolting, screwing or other fastening mechanisms. In further iterations, the present invention has been incorporated as both an attachment and a barrier, each of which now has been designed with a coupling mechanism in order to allow a more coherent method of affixing the attachment to the barrier. Up until this point, the attachment has always mounted the barrier from above. However, FIG. 15 illustrates a 'slide-to-fit' means for affixing the attachment 38 from the side to a redesigned barrier 39. In this iteration of the present invention, the inner profile of the attachment has changed and the outer profile of the barrier has changed. The downwardly depending flanges 38a, 38b are now designed with a

coupling mechanism 38c, 38d that are inwardly facing ribs or protrusions, which protrude inward from the insides of the flanges. This mechanism requires that the attachments be slid into place along a barrier 39 that has been designed with grooves 39a, 39b that run horizontally across the length of the front and back faces of the barrier. Though the present invention could still be embodied as signage, lights, handrails, etc., yet, for the purposes of illustrating the concept, FIG. 15 shows the present invention embodied as a planter 38. The planter chamber 38e is designed in the same way as described in FIG. 14, with one set of walls 38f perpendicular to the base and one set of walls 38g, sloped upward and away from the base, yet mid-way along the inside of the downwardly depending flanges 38a, 38b are the ribs or protrusions 38c, 38d that run horizontally along the inside of the flange and acts as a rail. These rails will slide into the corresponding grooves or tracks 39a, 39b that run alongside the outside almost vertical walls of the barrier 39. FIG. 15A illustrates how the rail and groove coupling mechanism forms a complementary profile to secure attachments to the barrier.

The present invention, in each of its embodiments, has addressed the barrier as a single entity. The previous attachments have been designed to fit linearly atop one barrier at a time. In its most common application, traffic barriers are used as such, placed end-to-end in a linear fashion. As already mentioned, it is the scope of the present invention to address the barriers as they are used in their less traditional sense. One instance is when barriers are placed face-to-face, or side-to-side, as opposed to end-to-end. It is in this instance that the present invention acts to bridge the barriers, and create a larger enclosed chamber in between the void of the two barriers. By enclosing this space and forming a chamber, a certain utility to this space arises, and it suggests a new use, such as a space for a planter. Again, this type of bridging attachment relates directly to the present invention as it employs the same straddling method in order to be placed atop the barrier. This invention still uses the downwardly depending flanges but in a slightly different manner.

FIG. 16 illustrates an attachment that straddles a pair of barriers that are arranged side-by-side. Attachment 40 includes outer downwardly depending flanges 40a, 40b, and an inner downwardly depending member 40f, which depend from an upper web 40c that spans the top sides of barriers 12 when attachment 40 is mounted to the barriers. Member 40f depends from the medial portion of web and is spaced inwardly from flanges 40a and 40b to hereby define inverted generally U-shaped recesses for receiving the respective barriers therein. Web 40c includes a central recess that forms a chamber 40h. In

this form, attachment 40 again incorporates a planter, which optimizes the use of the space between the side-by-side barriers 12. The sidewalls of the inner chamber 40h may be in the shape of an inverted triangle whose sides taper inward and eventually converge to form the bottom of the chamber.

As discussed, barriers that have been created to abut one another end-to-end are often arranged in non-linear configurations. For instance, more and more barriers are being used to serve the purpose of enclosing a space around a building or monument. This requires the barriers to be arranged at an angle with respect to each other, which they were not designed to accommodate. Therefore, the enclosed space remains unresolved both physically and aesthetically. If it is necessary that two barriers meet at untraditional angles, there is no means for joining the two ends of the barriers that are arranged at a generally 90° angle. FIG 17 begins to address this issue by illustrating a way in which attachment 42 of the present invention, embodied as a planter, can be designed to accommodate, for example, barriers arranged at 30°, 45°, or 90° angular orientations. Attachment 42 still employs the use of downwardly depending flanges 42a, 42b, but in the illustrated embodiment, attachment 42 forms two perpendicular planter chambers. This creates an elbow or L-shaped attachment or planter from which the flanges are used to mount two barriers. The attachment is designed to straddle the barriers much like the planter 14 of FIG. 3 and handrail 16 of FIG. 5. The difference here is that two attachments have effectively been combined at an angle that corresponds to the needs of barriers being used to enclose a space. The flanges will still rest upon the upward portion of the barrier and FIG. 17A shows attachment 42 resting atop two barriers 12 placed perpendicularly to each other.

The actual design of the present invention is based on the two downwardly depending flanges that allow the attachments to straddle barriers. Though this design has been embodied throughout these drawings, exact design specifications, as they relate to the manufacture of this product and end-use of the invention as a salable product, are still to be determined. One deciding factor in the design will be the choice of material of the invention and its corresponding method of manufacture. FIG. 18 illustrates the present invention as a two-part assembly 44, as it could be assembled or placed on a barrier 12. Assembly 44 is configured as an attachment with a planter incorporated therein. For illustrative purposes FIG. 18 shows an attachment that has been created as two parts 44a, 44b joined together, so as to be secured to the barrier in a back-to-back fashion, as opposed to the attachments mentioned previously that have been added from the top down. Each part 44a, 44b includes

coupling components placed along the inside edge 44c of parts 44a, 44b so as to create an interlocking interface for the components to join together. The outside profile of each part begins at the base, which comprises a mounting flange 44d with a plurality of mounting openings 44e for mounting the attachment part to the barrier through the use of bolts, pins, etc. Extending upwards and outward from flange 44d is a framework 44f, which together with mounting flange 44d, form the downwardly depending flange 44g that runs parallel to the upward portion of the barrier 12. It is within this framework 44f that signage or ornaments will be displayed. Extending from framework 44g is one half of the planter and the surface bearing that will allow the part to rest atop the barrier. In the illustrated embodiment, sides 44i of the planter are curved outwardly to form a flared planter box. The planter is, therefore, formed when the two halves of the planter are assembled together (such as shown in FIG. 18A). As understood, the two downwardly depending flanges 44g, 44j each host a framework for signage that is placed within the grooves that run along the inside edge of the framework 44k. The framework holds the added elements into place for their display through the opening in the front of the flange 44l. FIG. 18A is an elevation view of the invention 44 illustrating the two parts assembled on the barrier 12.

While several forms of the invention have been shown and described other forms of the invention will now become apparent to those skilled in the art. For example, one could easily imagine the embodiments of other amenities that straddle barriers and provide either aesthetic or functional benefits as a result of their attachment. Furthermore, the shapes and dimensions of the various attachments may be varied.

Therefore, it will be understood that the embodiments shown in the drawings and described above are merely for illustrative purposes only and are not intended to limit the scope of the invention which is defined by the claims that follow.